sample as well as methods for measuring the level of GLUTX protein or nucleic acid in a biological sample. Such methods are useful for diagnosis of disorders associated with aberrant expression of GLUTX.

An exemplary method for detecting the presence or absence of GLUTX in a biological sample involves obtaining a biological sample from a test subject and contacting the biological sample with a compound or an agent capable of detecting a GLUTX polypeptide or a GLUTX nucleic acid (*e.g.*, mRNA or genomic DNA). A preferred agent for detecting GLUTX mRNA or genomic DNA is a labeled nucleic acid probe capable of hybridizing to GLUTX mRNA or genomic DNA. The nucleic acid probe can be, for example, a full-length GLUTX nucleic acid molecule, such as a nucleic acid molecule having the sequence of SEQ ID NO:1, or a portion thereof, such as an oligonucleotide of at least 15, 30, 50, 100, 250, or 500 nucleotides in length and sufficient to specifically hybridize under stringent conditions to GLUTX mRNA or genomic DNA.

A preferred agent for detecting a GLUTX polypeptide is an antibody capable of binding to an GLUTX polypeptide, preferably an antibody with a detectable label. Antibodies can be polyclonal, or more preferably, monoclonal. An intact antibody, or a fragment thereof (*e.g.*, Fab or $F(ab')_2$) can be used. The term "labeled," with regard to the probe or antibody, is intended to encompass direct labeling of the probe or antibody by coupling (*i.e.*, physically linking) a detectable substance to the probe or antibody, as well as indirect labeling of the probe or antibody by reactivity with another reagent that is directly labeled. Examples of indirect labeling include detection of a primary antibody using a fluorescently labeled secondary antibody and end-labeling of a DNA probe with biotin such

that it can be detected with fluorescently labeled streptavidin. The term "biological sample" is intended to include tissues, cells, and biological fluids isolated from a subject, as well as tissues, cells and fluids present within a subject. That is, the detection method of the invention can be used to detect GLUTX mRNA, a GLUTX polypeptide, or GLUTX genomic DNA in a biological sample *in vitro* as well as *in vivo*. For example, *in vitro* techniques for detection of GLUTX mRNA include Northern hybridizations and *in situ* hybridizations. *In vitro* techniques for detection of a GLUTX polypeptide include enzyme linked immunosorbent assays (ELISAs), Western blots, immunoprecipitations and immunofluorescence. *In vitro* techniques for detection of GLUTX genomic DNA include Southern hybridizations. Furthermore, *in vivo* techniques for detection of a GLUTX polypeptide include introducing into a subject a labeled anti-GLUTX antibody. For example, the antibody can be labeled with a radioactive marker whose presence and location in a subject can be detected by standard imaging techniques.

In one embodiment, the biological sample contains protein molecules from the test subject. Alternatively, the biological sample can contain mRNA molecules from the test subject or genomic DNA molecules from the test subject.

In another embodiment, the methods further involve obtaining a control biological sample from a control subject, contacting the control sample with a compound or agent capable of detecting a GLUTX polypeptide, GLUTX mRNA, or GLUTX genomic DNA, such that the presence of a GLUTX polypeptide, GLUTX mRNA, or GLUTX genomic DNA is detected in the biological sample, and comparing the presence of GLUTX polypeptide, GLUTX mRNA, or genomic DNA in the control sample with the presence of GLUTX polypeptides, mRNA or

genomic DNA in a test sample.

The invention also encompasses kits for detecting the presence of GLUTX nucleic acid molecules or GLUTX polypeptides in a biological sample. For example, the kit can contain a labeled compound or agent capable of detecting a GLUTX polypeptide or a GLUTX mRNA molecule in a biological sample; means for determining the amount of GLUTX in the sample; and means for comparing the amount of GLUTX in the sample with a standard. The compound or agent can be packaged in a suitable container. The kit can further contain instructions for using the kit to detect a GLUTX polypeptide or GLUTX nucleic acid molecule.

X. Prognostic Assays

The invention also encompasses prognostic assays that can be used to identify subjects having or at risk of developing a disease or disorder associated with aberrant GLUTX expression or GLUTX activity. Thus, the present invention provides methods in which a test sample is obtained from a subject and the level, or presence, or allelic form GLUTX nucleic acid molecules or GLUTX polypeptides ia assessed. As used herein, a "test sample" refers to a biological sample obtained from a subject of interest. For example, a test sample can be a biological fluid (*e.g.*, serum), a cell sample, or tissue.

Furthermore, the prognostic assays described herein can be used to determine whether a subject can be administered an agent (*e.g.*, an agonist, antagonist, peptidomimetic, polypeptide, nucleic acid, small molecule or other drug candidate) to treat a disease or disorder associated with aberrant GLUTX expression or GLUTX activity. For example, such methods can be used to determine whether a subject can be effectively treated with an agent that